DOCUMENT RESUME

ED 171 411 PS 010 623

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TITLE Classroom Caring and Concern Affect Student Outcomes.
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SPONS AGENCY National Inst. of Mental Health (DHEW), Rockville, Md.
PUB DATE Apr 79
GRANT NIMH-G-24859
NOTE 32p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 8-12, 1979)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; *Affective Behavior; *Affective Objectives; Basic Skills; Classroom Research; Elementary School Students; *Helping Relationship; Income; Interaction Process Analysis; *Interpersonal Relationship; Productive Thinking; Self Esteem; Student Responsibility; *Student Teacher Relationship; Teacher Influence

ABSTRACT

Cognitive, affective, and social effects of teacher involvement with students were investigated for two successive years at two grade levels (grades 4 and 5 in the first year; grades 5 and 6 in the second) and three income levels (low, medium, high). The final sample consisted of 910 students in Year 1 and 816 students in Year 2 obtained from 14 schools. Cognitive measures of student outcomes focused on reading comprehension, knowledge and use of references, and mathematics problem solving. Affective measures dealt with a student's sense of competence as a learner, attitudes towards school, and responsibility as a student. Social measures were peer ratings of getting and giving help in the classroom. Teacher involvement was assessed by means of items on two classroom observation category systems. These items focused on behavior that "warms the climate" or "cools the climate" and behavior that expresses concern, caring and help, or restricts cooperation and is rejecting. In general, results indicated that student performance on all three types of outcomes was higher for high involvement classes, though the data were stronger on cognitive than affective and social measures. The differential impact of teacher involvement on students of various income levels varied with the year of testing, grade level, and type of measure. Extensive tables and references are provided. (SS)

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CLASSROOM CARING AND CONCERN AFFECT STUDENT OUTCOMES

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April 1979

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This study was partly supported by NIMH Grant 24859.

PS 010623

I. Purpose and Background

The impact on educational outcomes of the relationships among teachers and students continues to be a matter of conjecture, dispute, and divergent opinion. The purpose of this research is to investigate the impact of "Involvement" among teachers and students on cognitive, affective, and social outcomes for students.

The basic conceptualization utilized in structuring this research comes from Glasser (1965, 1969), who argues that the therapist or teacher must first establish a relationship with--that is, become involved with--a client or student in order to be able to influence learning. The definitions of involvement include such elements as caring, concern, interest, attention, warmth, revealing oneself as human, positiveness, working together, helping, and promoting communication.

The research of others has demonstrated that various elements of classroom relationships are related to student outcomes. For our purposes, that research will be grouped according to the consequences of the classroom relationships for: (1) precursors to, or concomitants of, learning--those student outcomes which are believed to permit and/or promote student growth; (2) cognitive outcomes--increases in knowledge and/or productive thinking (Bloom, 1956); (3) affective outcomes--those reflecting attitudes, values, behavioral tendencies, or emotional states; and (4) nonspecific outcomes--student changes which are not specified adequately in the research report to permit such a categorization.

Among the articles relevant to the first category above (precursors or concomitants), Waller (1961) described the basic pattern of relationships in the classroom as dominance-submission. He stated that that relationship shut off communication. Galloway (1976) states that involvement is accompanied by an out-pouring of energies. Yussen and Levy (1975) found that young girls who interacted with "warm" adults were more likely to pay attention to them than to "neutral" adults. Oeser (1955) stated that student needs for acceptance and communication were more often met when the teacher liked the student. The Plowden Report (1967), Featherstone (1967), and Silberman (1970) state that improving relationships among teachers and students improves the learning environment. Thus, these articles indicate that involvement is related to factors which in turn affect learning outcomes.

Other studies are relevant to the relationship of involvement to cognitive outcomes. Aspy and Roebuck (1972) found that the positive regard of teachers for students is related to higher cognitive functioning by those students. Yussen and Levy (1975) found that young girls recalled more following instruction with "warm" adults than with "neutral" adults. Karre (1976) found that a more affective instructional approach (which included concern for student feelings aroused by school work) was related to more cognitive responses by students. Postman

and Weingartner (1969) state that interaction among students is important in the development of inquiry behavior. Glidewell (1966) reports that the widespread acceptance of students by the teacher is related to independent thinking by students. Sears (1963) states that teacher expressions of interest in students are related to student creativity. These reports indicate the existence of a positive relationship between involvement and student cognitive outcomes.

The third subset of relevant literature concerns the relationship of involvement with student affective outcomes. Glidewell (1966) reported that student responsibility was higher when there was widespread acceptance of students by the teacher. Karre (1976) found more affective student responses when there was concern for student feelings. In these studies, involvement was positively linked with student affective outcomes.

The fourth subset of articles seemed to be examining the relationsip between involvement and outcomes, but the outcome variables were not clearly specified. Kiritz and Moos (1974) suggest that the social stimuli associated with the relationship dimensions of support, cohesion, and affiliation generally have positive effects. Glasser (1969) wrote that involvement led to modification of student behavior and to student growth. Johnson and Johnson (1974) argue that cooperative goal structures are better than competitive ones in producing problem solving and in producing more achievement. (Cooperative goal structures included students working together with interdependence.) Stoffer (1970) reported that warmth and empathy on the part of adult female volunteers were related to positive behavioral change on the part of students with behavioral and academic difficulties. Moskowitz and Hayman (1976) reported that "best teachers" (those identified by students as "best liked" and "learned most from") exhibited more accepting behavior and dealt with student feelings more frequently. While the outcomes are not clearly cognitive or affective, these studies indicated that involvement is related to desirable outcomes.

In a review of research on the implementation of Glasser's (1969) ideas in classrooms, Neff and Ahlstrom (1978) found that there often was no significant relationship between (assumed) program implementation and student outcomes. A number of studies did find a positive relationship. Almost never was a negative relationship found. However, those studies seldom measured specific program variables, such as involvement. They do not provide information on the impact of such program variables.

The present study was designed to investigate the impact of involvement on student outcomes.

II. Design

This study was designed to examine student cognitive, affective, and social outcomes in classrooms which varied in the amount of Involvement which was present. The design called for a three-factor, multivariate analysis of variance. There were two grade levels of students, three income levels, and two levels of Involvement. The study was repeated in two successive years. Data were obtained during the first year in Grades 4 and 5. In the second year, data were obtained in Grades 5 and 6.

In the first year, it was not possible to collect pretest data. Therefore, the design was posttest only. In the second year, both pretest and posttest data were collected. After reviewing arguments on the analysis of change (Cronbach & Furby, 1970; Hummel-Rossi & Weinberg, 1975; Linn & Slinde, 1977; Lord, 1960; Nunnally, 1975; O'Connor, 1972; and Richards, 1975), it was decided that residual scores for individual students would be generated with regression procedures. These scores were used as the outcome variables for analyses in the second year.

III. Measurement

A. Student Outcomes

1. Cognitive outcomes

a. Achievement of Basic Skills

An enduring concern of supporters and critics of elementary and secondary education revolves around the ability of students to read, write, and compute. Whenever changes are made in educational activities or conditions, the impact of those changes on student basic education outcomes is questioned. The SWF program recognized the importance of tool skills. The program also emphasized the importance of developing the capacity of students to engage in productive thinking. Therefore, some evidence of the impact of the program on three kinds of skills was sought. Reading and mathematics seemed naturals. In addition, it seemed desirable to obtain evidence of skills relevant to productive thinking and problem solving.

Since the school district in which the study was done routinely administers the Iowa Tests of Basic Skills, it was decided to utilize the Reading Comprehension Test for reading; the Knowledge and Use of References as a measure relevant to productive thinking and problem solving; and the Mathematics Problem Solving Test for achievement of a basic skill in a problem solving context.

The ITBS tests were re-developed in the 1960's and early 1970's to increase the relevance of the results for educational conditions in schools today. (The previous versions of the tests had been developed in the early 1950's.) The authors report longitudinal stability coefficients for grades 4-5 and 5-6 as follows (Hieronymus & Lindquist, 1974, p. 64):

Insert Table 1 about here

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b. Productive Thinking

A great deal of work has been done over the years in studying thought processes from a variety of viewpoints. Some discussions of this can be found in Davis (1973); Guilford (1967); Rimoldi (1967); Newell and Simon (1972); and Treffinger, Renzulli, and Feldhusen (1971). A series of studies regarding individual and group problem solving was brought together in a book by N. R. F. Maier (1970).

Among the test developers whose work was reviewed were Covington, Crutchfield, Davies, and Olton (1972); Guilford (Sheridan, 1972); Molitor (1974); Raven (1962); Torrance (1966); and Speedie, Treffinger, and Feldhusen (1973).

The measures identified in the work of those people were screened for validity, reliability, whether the tests could be administered in group settings, and whether they lent themselves to being read to the student respondents. Validity was based on relevant research produced by the test developers and on our estimates of the relevance for students in grades 4 through 6 in the metropolitan area in which the study was conducted. Reliability was based on data provided by test developers and our own assessments, principally using coefficient alpha, as advocated by Nunnally (1967).

The measures finally selected were two sub-tests of the Torrance Tests of Creative Thinking (Torrance, 1966), and one developed by Guilford and his associates, Unlikely Things (Sheridan Psychological Services, 1972).

2. Affective outcomes

The following measures on the right side of the table below were chosen to assess the affective outcomes indicated in the left side of Table 2 below.

Insert Table 2.

The Sense of Competence as a Learner (SOCL) was reported by Franks (1974) to have a Cronbach alpha of .82 on 460 students in grades 7 and 8. In the present study, an alpha of .80 was obtained on 792 students in grades 4 and 5 in the first year. In the second year, an alpha of .82 was obtained on 968 students in grades 5 and 6. This instrument could be read to students.

The Pupil Opinion Questionnaire (POQ) was found to have alpha coefficients of .83 during the first year of the study and .87 during the second. This measure also could be read to the students.

The Intellectual Achievement Responsibility (IAR) measure was reduced to twelve positive and twelve negative items through Rasch analysis and other procedures. The alpha coefficient for the second year was .69, which compares favorably with data obtained by Crandall (1965, p. 100) which provided a test-retest correlation of .69.

3. Social Outcomes

Two items were developed for assessment in this area, one on giving and one on getting help in the class setting. Students were asked to rate their classmates on how good a job they did in giving help (as with arithmetic or reading, or helping find books or pencils, or moving things for a class activity) and in getting help on those matters. Test-retest correlations (from measures three weeks apart) on Grade 4 students were .51 for Giving and .63 for Getting. Approximately twenty students were assessed on each measure.

B. Classroom Characteristics

Two classroom observation procedures were used to assess Involvement. The first was Ober's Reciprocal Category System (1968), and the second was developed for this project and called the Success School Classroom Description.

1. The Reciprocal Category System (RCS) is based on Flanders' interaction analysis system (Flanders, 1960). The RCS provides twenty categories, of which nine reflect teacher behavior, nine reflect student behavior, and the other two reflect silence or confusion. The two items which were used in assessing Involvement are defined as follows:

Warms the Climate: Tends to open up and/or eliminate the tension of the situation; praises or encourages the action, behavior, comments, ideas, and/or contributions of another; jokes that release tension not at the expense of others; accepts and clarifies the feeling tone of another in a friendly manner (feelings may be positive or negative; predicting or recalling the feelings of another are included). Includes friendly, happy laughter and giggling by pupils.

Cools the Climate: Makes statements intended to modify the behavior of another from an inappropriate to an appropriate pattern; may tend to create a certain amount of tension (i.e., bawling someone out, exercising authority in order to gain or maintain control of the situation; rejecting or criticizing the opinion or judgment of another. Includes derisive or mocking laughter by students.

Observer reliability for Year 1 on the RCS, based on all categories and using Scott's coefficient of agreement (Scott, 1965), ranged from .68 to .91 for six observers who were measured three different times. Most of the coefficients were in the .70's and .80's. In Year 2 reliability assessments near the end of observer training and at the middle of data collection ranged from .50 to .94, with most in the high .70's and .80's.

Scores on the RCS were based on the observer categorizations made every three seconds during a series of assessments, each of which lasted approximately five minutes. On the average, 79 minutes of RCS data were collected on teachers, or about 26 minutes per observation, during Year 1. During Year 2, approximately 100 minutes of RCS data were collected, on the average, in each classroom.

2. The Success Schools Classroom Description (SSCD)

Items for the SSCD measure of Involvement were generated from a variety of sources, including relevant literature, staff members of the Educator Training

Center (which trains educators in an educational program which includes emphasis on Involvement), and teachers trained in that program. These items were reviewed by teachers who had been trained in the program and who had implemented it. Among the items used to assess Involvement were:

Teacher expresses concern and caring
Teacher encourages concern, help, support among students
Students cooperate with each other in learning or play activity
Teacher rejects/ridicules on a personal basis
Teacher critical of students working together
Teacher or student requests help or assistance from another
Teacher or student gives help or assistance to another
Teacher greets group/class warmly
Teacher participates with students in learning activity

Observers watched classroom activities for three minutes, then indicated on a checklist whether the characteristics assessed by the items in the SSCD had been exhibited. This was repeated two more times, then the observer used the RCS. After a period of using that instrument, the observer then collected data again with the SSCD. The data were accumulated by item for each of the observers in order to generate the score for Involvement. The number of assessments or observations for each item which were made for each teacher averaged twenty-four per teacher on the SSCD, or eight per observation, in Year 1. During Year 2, about thirty-six assessments, or twelve per observation, were made for each teacher.

Simple percentage agreement among observers on all indicator items for the SSCD (not only involvement) ranged from 60 percent to 65 percent. To increase the confidence in this measure, only those classrooms for which observers were in agreement that the classroom was high or low were included.

In Year 2 of the study, the average percent of agreement during training ranged from 73 percent to 82 percent, and it was 89 percent when a check was made during the middle of data collection.

IV. Samples

A. Year 1

Schools in which the study was conducted were selected in such a way that three income levels were represented, as measured by the proportion of students receiving subsidized lunches. Thus, High Income Schools were those in which the percentage ranged from 0 to 39; Medium Income Schools were those in which the percentage was 40 to 79; and Low Income Schools were those in which 80 to 100 percent received subsidized lunches.

Thirty-eight teachers in the fourteen schools volunteered to participate in the study and to permit the collection of data on student outcomes and on classroom characteristics.

Data were collected from approximately 1,065 students in Grades 4 and 5. However, analyses were done on a smaller set. Students who had not been in the school for at least sixty school days prior to data collection were dropped because there would have been very limited time for impact of classroom variables on student outcomes. Some students were dropped because they missed several data collections.

The number of classes and students which entered the analyses are shown below in Table 3.

Insert Table 3.

B. Year 2

Similar procedures for selecting schools and classes were followed in the second year. However, a larger number of schools and classes which were expected to be high on Involvement were sought. Again, data were obtained from fourteen schools and in thirty-seven classes in Grades 5 and 6. The numbers of classes and students are shown below in Table 4.

Insert Table 4.

V. Analysis

The basic analysis design was a three-factor, multivariate analysis of variance. The three factors were Grade, Income, and Involvement. The dependent variables were student outcome scores. The analyses were run in two parts. Cognitive Outcomes were analyzed together. Affective and social outcomes were analyzed in a second computer run.

The analyses were performed twice, once using the individual student as the unit of analysis, once using the classroom as the unit of analysis. Findings from these two kinds of analyses were similar in direction, but different in the statistical significance of findings. The individual level analyses provided many more significant findings. They are reported here as they provide more information for educational practitioners and for researchers interested in tendencies.

In the first year, student outcome posttest scores were used in the analyses. In the second year, when both pre and posttest data were available, residual gain scores were used in the analyses.

VI. Results

The results will be presented for cognitive outcomes first, then for affective and social outcomes.

A. Involvement and Student Cognitive Outcomes

1. Analyses based on Involvement as measured with the Success Schools Classroom Description instrument (SSCD).

a. Year 1

The analyses were conducted on twenty-one of the thirty-seven classrooms in which data were collected. These classrooms were those upon which observers were in most agreement on the assessment of Involvement and were either high or low on that assessment. None of the classrooms in the Low Income schools met those criteria and did not participate in the analyses.

Table 5 provides the mean cognitive outcome scores for students split into the three-factor design of the analysis. Table 6 provides the results of the MANOVA for both individual and class levels of analysis. Only the results based on individual level analyses will be discussed.

Insert Tables 5 and 6 about here.

The results in Table 6 show both significant main effects and significant interactions. These analyses indicate that the impact of Involvement was greater for students in High Income Schools in both Grades 4 and 5 and for students in Medium Income Schools in Grade 4. Those students were more likely to have higher outcomes on measures of achievement and measures of thinking.

b. Year 2

Student cognitive outcome mean scores for Year 2 are provided in Table 7. These analyses are based on data from thirty-five classrooms. The MANOVA data are in Table 8. There are significant main effects for all factors and for the Grade by Involvement interaction and Income by Involvement interaction when Medium Income is contrasted with Low Income. Students in High and Low Income schools tend to have higher outcomes in High Involvement classes. The reverse of this is true for students in Medium Income Schools on measures of thinking. Students in higher income schools tend to have better outcomes than students in lower income schools. The students in Grade 5 do better in Originality than students in Grade 6.

Insert Tables 7 and 8 about here.

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c. Summary for the SSCD

Students in classes high in Involvement are likely to have better cognitive outcomes than students in classes low in Involvement.

2. Results of Analyses Based on Involvement Measured with the Reciprocal Category System (RCS).

a. Year 1

Data on Involvement as measured by the RCS were adequate for twenty-two classrooms. Although there were a number of classrooms in Low Income Schools in both grade levels, there was none in the Grade 4 High Involvement cell. Analyses involving that cell independently are not reported.

The mean scores are shown in Table 9. The results of the MANOVA are shown in Table 10. Involvement main effects are significant for both the individaul and class level analyses. At the individual level, there is a significant main effect for the other factors and a significant Income by Involvement interaction. These results indicate that students in High Involvement classes have higher cognitive outcomes and that students in Medium Income Schools may be especially benefitted.

Insert Tables 9 and 10 about here.

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b. Year 2

Despite the attainment of adequate levels of inter-observer reliability, the data on Involvement from the RCS in Year 2 did not adequately differentiate enough classes to permit analysis of this variable in this year.

c. Summary for the RCS

Based on Year 1 data, students are better off in High Involvement classes.

3. Summary Regarding Cognitive Outcomes

On both the SSCD and the RCS data regarding Involvement, students are more likely to have higher cognitive outcomes in High Involvement classes.

B. Involvement and Affective and Social Outcomes

1. Analyses Based on Involvement as Measured by the SSCD.

a. Year 1

Data were available on Involvement from the SSCD on twenty-one classrooms in Year 1. No classes in Low Income schools had adequate data. Therefore, Income comparisons were between High and Medium Income schools.

Mean scores for affective and social outcomes are shown in Table 11. The MANOVA results are in Table 12.

Insert Tables 11 and 12 about here.

Analyses based on individual data were significant for main effects and for the Grade by Involvement by Income interaction. These results indicate that students in High Involvement classes have higher affective and social outcomes. They have better attitudes towards school and do better at giving and getting help in the classroom. Students in High Involvement classes in High Income schools have a higher sense of competence as learners in both Grades 4 and 5. The same is true for Medium Income school students in Grade 4 only.

b. Year 2

Involvement data on the SSCD were adequate for thirty-five classrooms in Year 2. Mean scores on affective and social outcomes are provided in Table 13. The MANOVA results are in Table 14.

Insert Tables 13 and 14 about here.

The significant Income by Involvement interaction provides mixed results with significance only for students in High Income schools. In those schools, the results were mixed, depending upon the particular outcomes examined.

c. Summary for the SSCD

Based on Year 1 results, students are better off in High Involvement Classes but the mixed results for Year 2 attenuate this conclusion-

2. Analyses Based on Involvement as Measured by the RCS.

a. Year 1

Analyses are based on data on Involvement from the RCS for twenty-two classes. No data were available for the Grade 4, High Involvement High Income cell.

Table 15 provides the mean scores. MANOVA results are in Table 16.

Insert Tables 15 and 16 about here.

The main effects of Involvement are significant for both individual and class level of analysis. The same is true for the Involvement by Income interaction. These results indicate that students in High Income schools do better in giving and getting help when they are in High Involvement classes, while the reverse may be true for students in Medium Income schools. However, the main effects of Involvement indicate that students in High Involvement classes are likely to have a higher sense of competence as learners, better attitudes towards school, and higher ability to get help.

b. Year 2

As explained above, data were not adequate on enough classes on Involvement from the RCS to permit this analysis.

c. Summary for the RCS

Although some Medium Income school data may be contradictory, the data generally indicate that students in High Involvement classes have better affective and social outcomes.

3. Summary for Affective and Social Outcomes

The data provide basic evidence of a positive impact of Involvement on student affective and social outcomes. Results are sometimes mixed, and the absence of RCS data for Year 2 reduce the power of this conclusion.

VII. Conclusions

Involvement in classrooms--a relationship reflecting caring, interest, concern, attention, and warmth--is positively associated with student cognitive, affective, and social outcomes. The data are stronger for cognitive outcomes.

The argument is sometimes made that concern with interpersonal relationships in the classroom is justified if it has beneficial effects on student affective outcomes, such as attitudes toward school or self-concept. While many would agree with argument, others would claim that schools should focus on cognitive outcomes, that is, student achievement. The data from this study indicate that cognitive outcomes are affected by the nature of relationships among people in the classroom.

Teachers can foster improved student cognitive performance and affective and social outcomes. However, it may not be easy. Building Involvement may require teachers to relate to students in less role-determined ways and more as people to people.

Obviously, no single research project proves that one variable determines another. More research which builds on concepts around the meaning of various interpersonal relationships to students, and the implications of that meaning for their learning activities, is needed. It will also be important to learn how teacher and student expectations affect the development of Involvement in classrooms.

It would be desirable for research on these matters to develop a longer-range quality. By working with a set of interested teachers and administrators over a period of several years, intentional manipulation of classroom conditions would provide a test of the results of the cross-sectional approach used in this study. Involving teachers and administrators has the additional advantage of getting their observations and understanding and effort to make the manipulations forceful and understood.

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Table 1

ITBS Longitudinal Stability Over One Year

Grades	Reading	Knowledge and Use of References	Mathematics Problem Solving
4-5	.81	.70	.66
5-6	.84	.80	.73

Table 2

Measures Used to Assess Student Affective Outcomes

Outcome Variable	Measure, Author, Reference
Sense of competence as a learner	Sense of Competence as a Learner (Liddle, 1967)
Attitudes toward school	Pupil Opinion Questionnaire (Glick, 1967)
Responsibility as a student	Intellectual Achievement Responsibility (Crandall, Katkovsky, and Crandall, 1965)

Table 3

Distribution of Classes and Students
by Grade, Income, and Involvement
Year 1

	Income	Involvement			
		Grade 4		Grade 5	
		High	Low	High	Low
Classes	High	5	4	2	4
	Medium	3	3	4	3
	Low	1	3	3	3
Students	High	114	78	42	108
	Medium	84	71	114	71
	Low	25	64	82	57

Table 4

Distribution of Classes and Students
by Grade, Income and Involvement
Year 2

	Income	Involvement			
		Grade 5		Grade 6	
		High	Low	High	Low
Classes	High	3	2	2	2
	Medium	5	2	6	3
	Low	5	1	4	2
Students	High	73	42	46	50
	Medium	114	45	137	71
	Low	103	25	72	38

Table 5

Student Cognitive Outcome Mean Scores by Grade, Income, and SSCD Involvement
Year 1

Cognitive Outcomes	Income	Means			
		Grade 4		Grade 5	
		High	Low	High	Low
Reading (ITBS)	High	4.62	4.06	5.77	4.84
	Medium	3.87	3.49	3.46	3.62
	-Low-				
	Unweighted Mean	4.25	3.78	4.62	4.23
References (ITBS)	High	4.56	3.92	6.04	4.94
	Medium	3.82	3.54	4.22	4.16
	-Low-				
	Unweighted Mean	4.19	3.73	5.13	4.55
Math Problem Solving (ITBS)	High	4.62	4.26	5.79	5.06
	Medium	3.68	3.77	4.29	4.18
	-Low-				
	Unweighted Mean	4.15	4.02	5.04	4.62
Fluency (TTCT)	High	21.09	19.20	28.69	26.49
	Medium	28.32	18.96	16.35	25.64
	-Low-				
	Unweighted Mean	24.71	19.08	22.52	26.07
Flexibility (TTCT)	High	11.92	10.11	14.24	11.74
	Medium	12.30	9.53	7.82	11.81
	-Low-				
	Unweighted Mean	12.11	9.82	11.03	11.78
Originality (TTCT)	High	21.36	19.84	28.00	27.32
	Medium	34.39	19.88	19.82	30.45
	-Low-				
	Unweighted Mean	27.88	19.86	23.91	28.89
Unlikely Things	High	31.46	30.51	32.83	32.19
	Medium	30.11	26.49	25.29	28.36
	-Low-				
	Unweighted Mean	30.79	28.50	29.06	30.28

Table 6

Multivariate ANOVA of Student Cognitive Outcomes by Grade, Income, and SSCD Involvement
Year 1
Individual Level Analysis

Source	Fa	p
Grade	9.23	.001
Income (High X Medium + ~~Low~~) (~~Medium X Low~~)	16.11	.001
Program	3.90	.001
Grade X Program	2.90	.006
Income X Program (High X Medium + ~~Low~~) (~~Medium X Low~~)	3.63	.001
Grade X Income X Program (High X Medium + ~~Low~~) (~~Medium X Low~~)	2.49	.016

[a]Degrees of freedom = 7,411

Class Level Analysis

Source	Fa	p
Grade	4.44	.034
Income (High X Medium + ~~Low~~) (~~Medium X Low~~)	8.09	.007
Program	2.27	.151
Grade X Program	.41	.871
Income X Program (High X Medium + ~~Low~~) (~~Medium X Low~~)	1.12	.442
Grade X Income X Program (High X Medium + ~~Low~~) (~~Medium X Low~~)	.70	.675

[a]Degrees of freedom = 7,7

Table 7

Student Cognitive Outcome Mean Scores by Grade, Income, and SSCD Involvement
Year 2

Cognitive Outcomes	Income	Means			
		Grade 5		Grade 6	
		SSCD Involve.		SSCD Involve.	
		High	Low	High	Low
References (ITBS)	High	.157	.169	.582	.187
	Medium	-.132	-.085	.150	-.231
	Low	-.137	-.156	-.020	-.273
	Unweighted Mean	-.037	.024	.237	-.108
Math Problem Solving (ITBS)	High	.037	.129	.138	.203
	Medium	-.055	-.061	.077	-.349
	Low	.101	-.087	.037	-.148
	Unweighted Mean	.028	-.007	.084	-.098
Fluency (TTCT)	High	.002	.023	.279	-.046
	Medium	-.123	.232	-.073	.021
	Low	-.086	-.459	.036	-.291
	Unweighted Mean	-.069	-.068	.081	-.105
Flexibility (TTCT)	High	-.053	-.016	.370	.269
	Medium	-.202	.140	.055	.115
	Low	-.131	-.563	-.065	-.181
	Unweighted Mean	-.129	-.146	.120	.067
Originality (TTCT)	High	-.002	.079	.414	-.110
	Medium	.010	.261	-.140	.006
	Low	.016	-.533	.037	-.354
	Unweighted Mean	.008	-.064	.104	-.153
Unlikely Things	High	-.075	.138	.324	.144
	Medium	-.166	-.029	.016	-.104
	Low	-.145	-.361	.068	-.054
	Unweighted Mean	-.129	-.084	.136	-.005

Table 8

Multivariate ANOVA of Student Cognitive Outcomes by Grade, Income, and SSCD Involvement
Year 2
Individual Level Analyses

Source	F[a]	p
Grade	4.59	.001
Income (High X Medium + Low)	10.11	.001
(Medium X Low)	3.71	.001
Program	3.88	.001
Grade X Program	3.40	.003
Income X Program		
(High X Medium + Low)	1.56	.155
(Medium X Low)	5.12	.001
Grade X Income X Program		
(High X Medium + Low)	1.50	.176
(Medium X Low)	1.48	.181

[a]Degrees of freedom = 6,751

Class Level Analyses

Source	F[a]	p
Grade	4.06	.010
Income (High X Medium + Low)	3.41	.020
(Medium X Low)	1.68	.183
Program	.96	.479
Grade X Program	1.32	.298
Income X Program		
(High X Medium + Low)	.76	.607
(Medium X Low)	1.00	.458
Grade X Income X Program		
(High X Medium + Low)	1.19	.356
(Medium X Low)	.44	.842

[a]Degrees of freedom = 6,18

Table 9

Student Cognitive Outcome Mean Scores by Grade, Income and RCS Involvement
Year 1

Cognitive Outcomes	Income	Means			
		Grade 4		Grade 5	
		RCS Involvement		RCS Involvement	
		High	Low	High	Low
Reading (ITBS)	High	4.64	4.05	5.77	4.84
	Medium	4.04	2.96	5.06	3.36
	Low	0	3.27	3.93	4.09
	Unweighted Mean	4.34	3.43	4.92	4.10
References (ITBS)	High	4.68	4.01	6.04	4.94
	Medium	4.17	2.73	4.85	3.82
	Low	0	3.42	4.03	4.31
	Unweighted Mean	4.43	3.39	4.97	4.36
Math Problem Solving (ITBS)	High	4.62	4.39	5.79	5.06
	Medium	4.20	3.04	4.95	3.82
	Low	-	3.50	3.99	4.25
	Unweighted Mean	4.41	3.64	4.91	4.38
Fluency (TTCT)	High	22.28	9.93	28.69	26.49
	Medium	23.67	11.11	31.96	19.20
	Low	0	13.44	20.85	24.23
	Unweighted Mean	22.98	11.49	27.17	23.31
Flexibility (TTCT)	High	12.50	10.20	14.25	11.74
	Medium	12.13	6.06	14.33	10.40
	Low	0	7.15	9.50	11.34
	Unweighted Mean	12.32	7.80	12.69	11.16
Originality (TTCT)	High	23.78	21.96	28.00	27.32
	Medium	25.96	11.50	40.38	20.44
	Low	0	17.00	26.86	28.59
	Unweighted Mean	24.87	16.82	31.75	25.45
Unlikely Things	High	32.07	30.56	32.83	32.19
	Medium	29.75	22.61	32.58	26.20
	Low	0	28.59	28.10	28.31
	Unweighted Mean	30.91	27.25	31.17	28.90

Table 10

Multivariate ANOVA of Student Cognitive Outcomes by Grade, Income, and RCS Involvement
Year 1
Individual Level Analysis

Source	F[a]	p
Grade	8.02	.001
Income (High X Medium +-Low)-(Medium-X-Low)	10.60	.001
Program	6.74	.001
Grade X Program	1.55	.149
Income X Program (High X Medium +-Low)-(Medium-X-Low)-	3.92	.001
Grade X Income X Program (High X Medium +-Low)--(Medium-X-Low)	1.67	.115

[a]Degrees of freedom = 7,397

Class Level Analysis

Source	F[a]	p
Grade	2.15	.208
Income (High X Medium +-Low) (Medium-X-Low)	3.06	.118
Program	6.40	.029
Grade X Program	1.08	.482
Income X Program (High X Medium +-Low)-(Medium-X-Low)	2.01	.230
Grade X Income X Program (High X Medium +-Low)-(Medium-X-Low)	1.37	.376

[a]Degrees of freedom = 7,5

Table 11

Student Affective/Social Outcome Mean Scores by Grade, Income, and SSCD Involvement
Year 1

Affective/ Social	Income	Means			
		Grade 4		Grade 5	
		SSCD Involvement		SSCD Involvement	
		High	Low	High	Low
SOCL	High	61.96	61.52	63.11	59.61
	Medium	60.77	60.02	58.89	61.09
	~~Low~~				
	Unweighted Means	61.37	60.77	61.00	60.35
POQ	High	31.08	29.51	30.68	25.56
	Medium	26.02	25.77	30.33	24.33
	~~Low~~				
	Unweighted Means	28.55	27.64	30.51	24.95
IAR	High	18.57	19.07	19.64	18.58
	Medium	18.08	17.18	18.72	18.78
	~~Low~~				
	Unweighted Means	18.33	18.13	19.18	18.68
Giving Help	High	1.99	1.93	2.10	1.81
	Medium	2.03	1.96	1.99	1.88
	~~Low~~				
	Unweighted Means	2.01	1.95	2.05	1.85
Getting Help	High	2.15	1.96	2.13	1.83
	Medium	2.10	2.03	2.05	1.95
	~~Low~~				
	Unweighted Means	2.13	2.00	2.09	1.89

Table 12

Multivariate ANOVA of Student Affective/Social Outcomes by Grade, Income, and SSCD Involvement

Year 1

Individual Level Analyses

Source	F[a]	p
Grade	2.64	.023
Income (High X Medium +-Low)--(Medium-X-Low)--	4.93	.001
Program	4.94	.001
Grade X Program	2.02	.075
Income X Program (High X Medium +-Low)--(Medium-X-Low)--	1.30	.262
Grade X Income X Program (High X Medium +-Low)--(Medium-X-Low)--	2.24	.050

[a]Degrees of freedom = 5,398

Class Level Analyses

Source	F[a]	p
Grade	.47	.790
Income (High X Medium +-Low)--(Medium-X-Low)-	1.02	.459
Program	3.21	.062
Grade X Program	.97	.485
Income X Program (High X Medium +-Low)--(Medium-X-Low)-	1.50	.281
Grade X Income X Program (High X Medium +-Low)--(Medium-X-Low)-	1.41	.308

[a]Degrees of freedom = 5,9

Table 13

Student Affective/Social Outcome Mean Scores by Grade, Income, and SSCD Involvement
Year 2

Affective/ Social	Income	Means			
		Grade 5		Grade 6	
		SSCD Involvement		SSCD Involvement	
		High	Low	High	Low
SOCL	High	.016	.079	.284	.022
	Medium	-.054	-.027	.091	.253
	Low	-.273	-.005	-.151	-.132
	Unweighted Means	-.104	.016	.074	.048
POQ	High	-.233	.095	.173	.236
	Medium	.451	.019	-.064	-.287
	Low	-.012	-.013	-.019	.119
	Unweighted Means	.069	.033	.030	.023
IAR	High	-.360	.113	-.031	.333
	Medium	.126	-.043	.027	-.083
	Low	.012	-.233	-.018	.002
	Unweighted Means	-.074	-.054	-.007	.084
Giving Help	High	.185	-.031	.144	-.017
	Medium	-.041	.052	-.091	.007
	Low	-.180	.104	.033	-.051
	Unweighted Means	-.012	.042	.028	-.020
Getting Help	High	.224	-.191	.376	.006
	Medium	-.161	.155	-.020	.045
	Low	-.282	-.069	-.019	-.088
	Unweighted Means	-.073	-.035	.113	-.013

Table 14

Multivariate ANOVA of Student Affective/Social Outcomes by Grade, Income, and SSCD Involvement
Year 2
Individual Level Analyses

Source	F[a]	p
Grade	1.71	.130
Income (High X Medium + Low)	.99	.420
(Medium X Low)	3.16	.008
Program	.33	.896
Grade X Program	.23	.950
Income X Program		
(High X Medium + Low)	6.47	.001
(Medium X Low)	.80	.553
Grade X Income X Program		
(High X Medium + Low)	.96	.440
(Medium X Low)	.94	.452

[a]Degrees of freedom = 5,752

Class Level Analyses

Source	F[a]	p
Grade	1.21	.344
Income (High X Medium + Low)	1.91	.140
(Medium X Low)	2.66	.055
Program	.40	.840
Grade X Program	.06	.997
Income X Program		
(High X Medium + Low)	3.03	.034
(Medium X Low)	.42	.832
Grade X Income X Program		
(High X Medium + Low)	.26	.928
(Medium X Low)	.71	.620

[a]Degrees of freedom = 5,19

Table 15

Student Affective/Social Outcome Mean Scores by Grade, Income and RCS Involvement
Year 1

Affective/ Social	Income	Means			
		Grade 4		Grade 5	
		RCS Involvement		RCS Involvement	
		High	Low	High	Low
SOCL	High	62.28	61.69	63.11	59.61
	Medium	59.44	60.47	63.24	61.26
	Low	0	57.35	58.98	59.30
	Unweighted Means	60.86	59.84	61.78	60.06
POQ	High	30.74	30.15	30.68	25.56
	Medium	25.72	28.13	25.00	23.62
	Low	0	24.58	31.02	26.73
	Unweighted Means	28.23	27.62	28.90	25.30
IAR	High	18.70	19.00	19.64	18.58
	Medium	18.80	16.47	17.24	17.85
	Low	0	17.92	18.90	17.33
	Unweighted Means	18.75	17.80	18.59	17.92
Giving Help	High	1.96	1.86	2.10	1.81
	Medium	1.92	2.13	1.87	1.99
	Low	0	1.86	2.06	2.09
	Unweighted Means	1.94	1.95	2.01	1.95
Getting Help	High	2.13	1.97	2.13	1.83
	Medium	2.00	2.25	1.84	2.06
	Low	0	1.91	2.12	1.96
	Unweighted Means	2.07	2.04	2.03	1.95

Table 16

Multivariate ANOVA of Student Affective/Social Outcomes by Grade, Income, and RCS Involvement

Year 1

Individual Level Analysis

Source	F[a]	p
Grade	2.28	.046
Income (High X Medium +~~Low~~)- ~~(Medium X Low)~~-	5.59	.001
Program	4.83	.001
Grade X Program	1.08	.371
Income X Program (High X Medium +~~Low~~)- -~~(Medium X Low)~~--	4.13	.001
Grade X Income X Program (High X Medium +~~Low~~)- -~~(Medium X Low)~~-	1.37	.235

[a]Degrees of freedom = 5,388

Class Level Analysis

Source	F[a]	p
Grade	2.22	.163
Income (High X Medium +~~Low~~)- ~~(Medium X Low)~~-	.75	.612
Program	5.75	.020
Grade X Program	.45	.800
Income X Program (High X Medium +~~Low~~)- ~~(Medium X Low)~~-	4.98	.029
Grade X Income X Program (High X Medium +~~Low~~)-- ~~(Medium X Low)~~-	.43	.814

[a]Degrees of freedom = 5,7